

PTO/SB/21 (09-04)

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Total Number of Pages in This Submission

Application Number	09/729,133
Filing Date	12/01/2000
First Named Inventor	Bruce Bryan
Art Unit	1652
Examiner Name	Rebecca E. Prouty
Attorney Docket Number	LUME 48408

**ENCLOSURES** (Check all that apply)

<input type="checkbox"/> Fee Transmittal Form <input type="checkbox"/> Fee Attached <input type="checkbox"/> Amendment/Reply <input type="checkbox"/> After Final <input type="checkbox"/> Affidavits/declaration(s) <input type="checkbox"/> Extension of Time Request <input type="checkbox"/> Express Abandonment Request <input type="checkbox"/> Information Disclosure Statement  <input type="checkbox"/> Certified Copy of Priority Document(s) <input type="checkbox"/> Reply to Missing Parts/ Incomplete Application <input type="checkbox"/> Reply to Missing Parts under 37 CFR 1.52 or 1.53	<input type="checkbox"/> Drawing(s) <input type="checkbox"/> Licensing-related Papers  <input type="checkbox"/> Petition <input type="checkbox"/> Petition to Convert to a Provisional Application <input type="checkbox"/> Power of Attorney, Revocation Change of Correspondence Address  <input type="checkbox"/> Terminal Disclaimer <input type="checkbox"/> Request for Refund  <input type="checkbox"/> CD, Number of CD(s) _____ <input type="checkbox"/> Landscape Table on CD	<input type="checkbox"/> After Allowance Communication to TC <input type="checkbox"/> Appeal Communication to Board of Appeals and Interferences <input checked="" type="checkbox"/> Appeal Communication to TC (Appeal Notice, Brief, Reply Brief) <input type="checkbox"/> Proprietary Information <input type="checkbox"/> Status Letter <input checked="" type="checkbox"/> Other Enclosure(s) (please identify below): -- Return Postcard
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**SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT**

Firm Name	Pietragallo, Bosick & Gordon		
Signature			
Printed name	Lara A. Northrop		
Date	02/23/2005	Reg. No.	55,502

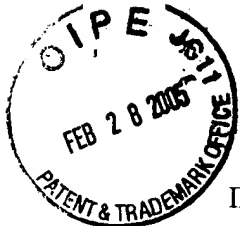
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No. : 09/729,133  
Applicant : Bruce Bryan  
Filed : 12/01/2000  
Title: : BIOLUMINESCENT NOVELTY ITEMS  
TC/A.U. : 1652  
Examiner : Rebecca E. Prouty  
Docket No. : 24729-105F (LUME 48408)  
Confirmation No. : 3075

**APPEAL BRIEF**

February 23, 2005

Mail Stop Appeal Brief - Patents  
Commissioner for Patents  
P. O. Box 1450  
Alexandria, VA 22313-1450

Sir:

Appellant hereby submits a new Appeal Brief in response to the Notification of Non-Compliant Appeal Brief dated January 31, 2005. Appellant's submission of the new Appeal Brief is within thirty days of the date of the Notice of Non-Compliant Appeal Brief, accordingly, no extensions of time are necessary. Appellant hereby appeals the final rejection of the captioned case set forth in the Office Action dated February 11, 2004, and maintained in the Advisory Action dated September 7, 2004.

**REAL PARTY IN INTEREST**

The real party in interest is Bruce Bryan, the inventor of the captioned application.

**RELATED APPEALS AND INTERFERENCES**

There are no related appeals or interferences that are believed to directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**STATUS OF CLAIMS**

Claims 1-21 are pending in the application, with claims 4, 6, 7 and 15-21 having been withdrawn.

Claims 9 and 11 are objected to.

Claims 1-3, 5, 8, 10 and 12-14 stand rejected under 35 U.S.C. § 103(a).

Claims 1-3, 5 and 8-14 are appealed. A listing of the appealed claims is presented in the appendix.

### **STATUS OF AMENDMENTS**

The amendments made pursuant to 37 CFR 1.116 have been entered for purposes of appeal.

### **SUMMARY OF THE INVENTION**

As recited in independent claim 1, the present invention relates to a combination comprising an article of manufacture (page 1, lines 25-28) and a bioluminescent fluorescent protein (page 21, lines 7-9), whereby the combination is a novelty item (page 15, lines 25-27). The article of manufacture can comprise toys (page 103, lines 29-31 and page 104, lines 1-28), fountains (page 16, line 14), personal care items (page 16, lines 13-14), fairy dust (page 16, line 2), foods (page 16, line 7), textile products (page 16, lines 4-7), bubbles (page 16, line 2), balloons (page 16, line 2), dentifrices (page 16, line 14), soaps (page 110, line 12), body paints (page 16, line 13), bubble bath (page 16, line 13), paper products (page 120, lines 14-27), squirt guns (page 111, lines 7-13), pellet guns (page 111, lines 10-13), finger paints (page 16, line 3), foot bags (page 117, line 29), slimy play material (page 104, lines 28 to page 106, line 24), clothing (page 110, line 11), bubble making toys (page 113, line 16 to page 115, line 18), body lotions (page 110, line 23), gels (page 93, line 12), body powders (page 93, line 24), body creams (page 110, line 12), toothpastes (page 110, line 29), greeting cards (page 120, lines 14-27), mouthwashes (page 16, line 14), body paints (page 93, line 25), cosmetics (page 93, line 25), bubble baths (page 94, line 27), inks (page 4, line 18), wrapping paper (page 120, line 26), ice (page 125, lines 11-12), dry ice (page 127, lines 12-14) or toy guns (page 16, line 1).

As recited in dependent claim 9, the present invention relates to a combination comprising an article of manufacture (page 1, lines 25-28) and a bioluminescent fluorescent protein (page 21, lines 7-9), whereby the combination is a novelty item (page 15, lines 25-27), comprising a delivery vehicle that contains the fluorescent protein (page 6, lines 27-31 and page 7, lines 1-6), wherein the vehicle is a liposome (page 6, line 29 and page 7, lines 4-6).

As recited in dependent claim 11, the present invention relates to a combination comprising an article of manufacture (page 1, lines 25-28) and a bioluminescent fluorescent protein (page 21, lines 7-9), whereby the combination is a novelty item (page 15, lines 25-27), comprising a delivery vehicle that contains the fluorescent protein (page 6, lines 27-31 and page 7, lines 1-6), wherein the vehicle comprises micronized particles of the components (page 72, lines 22-30).

### **ISSUES**

Whether claims 1-3, 5, 8, 10 and 12-14 are properly rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,246,631 to Halbritter in view of Prasher et al.

Whether dependent claims 9 and 11 are properly objected to in view of the rejection of independent base claim 1 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,246,631 to Halbritter in view of Prasher et al.

### **GROUPING OF CLAIMS**

Claims 1-3, 5 and 8, 10 and 12-14 stand or fall together.

Claim 9 stands or falls separately.

Claim 11 stands or falls separately.

### **ARGUMENT**

#### **The 35 U.S.C. § 103(a) Rejection of Claims 1-3, 5, 8, 10 and 12-14 is Improper and Should Be Reversed**

Claims 1-3, 5, 8, 10 and 12-14 were rejected under 35 U.S.C. § 103(a) as allegedly being obvious over U.S. Patent No. 5,246,631 to Halbritter (“Halbritter ‘631”) in view of the article entitled “*Primary Structure of the Aequorea victoria Green Fluorescent Protein*” authored by Prasher et al. (“Prasher et al.”).

Claim 1 recites a combination comprising an article of manufacture and a bioluminescent fluorescent protein, whereby the combination is a novelty item.

In the March 14, 2003 Office Action, Halbritter '631 was applied by the Examiner as disclosing bubble-making solutions comprising a chemical chemiluminescent generating system. Prasher et al. was applied by the Examiner as teaching the *Aequorea victoria* green-fluorescent protein and as teaching that this protein is highly fluorescent and stable even to a variety of harsh conditions including heat, extreme pH and chemical denaturants.

As asserted by the Examiner in the March 14, 2003 Office Action and maintained in the February 11, 2004 Office Action and the September 7, 2004 Advisory Action, the alleged motivation for combining Halbritter '631 and Prasher et al. is that:

It is well known in the art that children's toys, such as bubble blowing products should be non-toxic and should preferably contain only biodegradable components such that after use they do not contribute to pollution of the environment. Therefore, it would have been obvious to one of ordinary skill in the art to use the green fluorescent protein of Prasher et al. as the fluorescent component in the bubble solution of Halbritter as proteins are both non-toxic and biodegradable products and Prasher et al. teach that GFP is particularly stable under a variety of conditions making it ideal for use in a product which will include surfactants and may be stored under a variety of conditions by consumers.

The Halbritter '631 reference does not recite, explicitly or implicitly, that the bubble blowing solution is toxic, contains non-biodegradable components, or is an environmental pollutant. In addition, the Examiner does not assert that the bubble blowing solution of Halbritter '631 is toxic, contains non-biodegradable components, or is an environmental pollutant. Furthermore, the Halbritter '631 reference does not recite, explicitly or implicitly, that the bubble blowing solution is unstable, nor does the Examiner assert that the bubble blowing solution of Halbritter '631 is unstable. Accordingly, the Examiner's motivation for combining the teachings of Halbritter '631 with the teachings of Prasher et al. is baseless as there would be no need to provide the GFP of Prasher et al. as a replacement for the chemiluminescent system of Halbritter '631. One skilled in the art would not find a need to replace the chemiluminescent system of Halbritter '631 with a non-toxic, biodegradable, non-pollutant component or a stable component absent a showing that these characteristics are shortcomings of the Halbritter '631 reference.

As to the Examiner's statement that the GFP of Prasher et al. is "ideal for use in a product which will include surfactants", Prasher et al. provides no explicit or implicit support for this statement, nor does the Examiner provide any basis for this assertion.

Bioluminescent fluorescent proteins and chemiluminescent systems are distinct. A bioluminescent system requires a bioluminescent fluorescent protein such as a luciferin, luciferase or a photoprotein, whereas a chemiluminescent system involves a chemical reaction in which chemical energy is channeled to a molecule causing it to excite. As set forth in Applicant's specification at page 17, lines 23-28, "chemiluminescence refers to a chemical reaction in which energy is specifically channeled to a molecule causing it to become electronically excited and subsequently to release a photon thereby emitting visible light... Thus, chemiluminescence involves the direct conversion of chemical energy to light energy." (emphasis added). As set forth in Applicant's specification at page 18, lines 14-16, "The essential condition for bioluminescence is molecular oxygen, either bound or free in the presence of an oxygenase, a luciferase, which acts on a substrate, a luciferin." The bioluminescent fluorescent protein of amended claim 1 is a photoprotein, such as a luciferase and/or a luciferin, of a bioluminescent system, not a chemiluminescent system.

One skilled in the art of chemiluminescent light generating systems would conceivably look within the class of other chemiluminescent generating systems for possible substitutes. However, one skilled in the art would not look to the art of bioluminescent fluorescent proteins for possible substitutes for chemiluminescent materials. Often substances present in a chemiluminescent system are incompatible with the bioluminescent fluorescent proteins of bioluminescent systems. For example, the Halbritter '631 reference teaches that "the preferred chemiluminescent agent includes an oxalate diester which reacts with a peroxide and a fluoescer to provide the emission of light", as recited in column 2, lines 66-68 and column 3, line 1. Those skilled in the art will readily appreciate that the combination of peroxide with a bioluminescent system will greatly reduce, if not completely destroy, the biological light-emitting reaction. Peroxide is a strong reducing agent, which effectively destroys the surrounding oxygen. When peroxide contacts a bioluminescent component, such as a fluorescent protein, it destroys the coelenterazine necessary to allow the bioluminescent reaction to take place by destroying the oxygen. Accordingly, one skilled in the art would not replace the chemiluminescent system of Halbritter '631 with a bioluminescent fluorescent protein.

The Examiner stated on page 4 of the February 11, 2004 Office Action that Appellant's arguments are not persuasive because "both chemiluminescent systems and fluorescent proteins are known means of producing a luminescent effect as desired in the bubble toys disclosed in Halbritter '631". The Examiner relies on the Appellant's specification, which states in part:

Luminescence is a phenomenon in which energy is specifically channeled to a molecule to produce an excited state. Return to a lower energy state is accompanied by release of a photon ( $h\nu$ ). **Luminescence includes fluorescence, phosphorescence, chemiluminescence and bioluminescence.** Bioluminescence is the process by which living organisms emit light that is visible to other organisms. (emphasis added)

Appellant acknowledges that the phenomenon of luminescence, i.e. the emission of light, includes both chemiluminescence and bioluminescence, however, these two processes are distinct and are not interchangeable. The mechanisms involved in each system are entirely different with respect to the involved chemistry and mechanical process. Replacement of the chemistry and mechanisms present in chemiluminescent systems with the biological chemistry and biological materials present in bioluminescent system is not a simple substitution. A novelty item comprising a chemiluminescent system would need to be entirely redesigned to include a bioluminescent system. The requisite chemistry, materials and mechanisms would need to be replaced in order to accommodate the bioluminescent fluorescent protein as recited in Appellant's claims. Pursuant to MPEP 2143.01, "if the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious."

There is no suggestion, teaching or motivation, found explicitly or implicitly within the references or available to those of ordinary skill in the art, to combine the teachings of these references to arrive at the presently claimed structure. Furthermore, those of ordinary skill in the art will appreciate that chemiluminescent systems and bioluminescent systems are not interchangeable. It is well settled that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either explicitly or implicitly in the references themselves or in the knowledge generally available to one of ordinary skill in the art. MPEP 2143.01. Accordingly, the Examiner's alleged motivation for combining Halbritter '631 with Prasher et al. is unsupported and the presently claimed invention is not obvious.

It is respectfully submitted that the rejection of claims 1-3, 5, 8, 10 and 12-14 in view of the combination of Halbritter '631 and Prasher et al. is improper and should be withdrawn.

**The Objection to Dependent Claim 9 is Improper and Should Be Reversed**

Claim 9 stands or falls separately because it has been objected to as being dependent on a rejected base claim but would be allowable if re-written in independent form. In addition to the foregoing arguments addressing the improper rejection of independent claim 1, claim 9 recites the further limitation of “wherein the vehicle (of claim 8) is a liposome.” The Examiner’s search has uncovered no prior art that would preclude the allowance of claim 9 and has indicated that claim 9 would be allowable if rewritten in independent form. Accordingly, it is respectfully submitted that claim 9, which depends from claim 1, is allowable over the applied art.

**The Objection to Dependent Claim 11 is Improper and Should Be Reversed**

Claim 11 stands or falls separately because it has been objected to as being dependent on a rejected base claim but would be allowable if re-written in independent form. In addition to the foregoing arguments addressing the improper rejection of independent claim 1, claim 11 recites the further limitation of “wherein the vehicle (of claim 8) comprises micronized particles of the component(s).” The Examiner’s search has uncovered no prior art that would preclude the allowance of claim 11 and has indicated that claim 11 would be allowable if rewritten in independent form. Accordingly, it is respectfully submitted that claim 11, which depends from claim 1, is allowable over the applied art.



### SUMMARY

For all of the reasons given above, Appellant respectfully submits that the rejections of claims 1-3, 5, 8, 10 and 12-14 under 35 U.S.C. § 103(a) are improper and should be reversed. For all of the reasons given above, Appellant respectfully submits that the objection to claims 9 and 11 is improper and claims 9 and 11 should be allowed. Accordingly, it is respectfully requested that the case is in condition for Notice of Allowance and, as such, that the case be remanded to the Examiner for the appropriate action.

Respectfully submitted,



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## **APPENDIX**

1. A combination, comprising:  
an article of manufacture; and a bioluminescent fluorescent protein,  
whereby the combination is a novelty item.
2. The combination of claim 1, wherein the article of manufacture is  
selected from among toys, fountains, personal care items, fairy dust, foods, textile products,  
bubbles, balloons, dentrifices, soaps, body paints, and bubble bath, and paper products.
3. The combination of claim 1, wherein the article of manufacture is  
selected from among squirt guns, pellet guns, finger paints, foot bags, slimy play material,  
clothing, bubble making toys, body lotions, gels, body powders, body creams, toothpastes,  
greeting cards, mouthwashes, soaps, body paints, cosmetics, bubble baths, inks, wrapping paper,  
ice, dry ice and fountains.
5. The combination of claim 1, wherein the article of manufacture is  
bubbles, a bubble making toy or bubble bath.
8. The combination of claim 1, comprising a delivery vehicle that contains  
the fluorescent protein.
9. The combination of claim 8, wherein the vehicle is a liposome.
10. The combination of claim 8, wherein the vehicle is a gelatin capsule.
11. The combination of claim 8, wherein the vehicle comprises micronized  
particles of the component(s).
12. The combination of claim 8, wherein the vehicle is a time release vehicle.
13. The combination of claim 8, wherein the vehicle is water soluble.
14. The combination of claim 1, wherein the fluorescent protein is a green  
fluorescent protein, a blue fluorescent protein or a phycobiliprotein.